

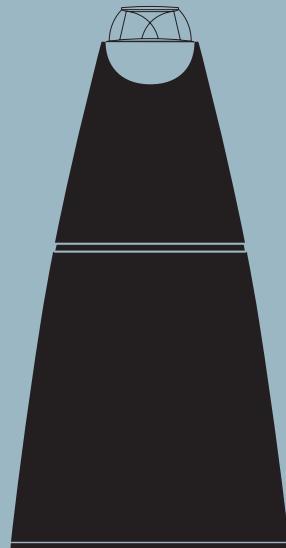
BeoLab 9

Type 6217

Service Manual

English

*German, French, Italian, Spanish, Danish, Dutch and Japanese versions
are available in the Retail System*

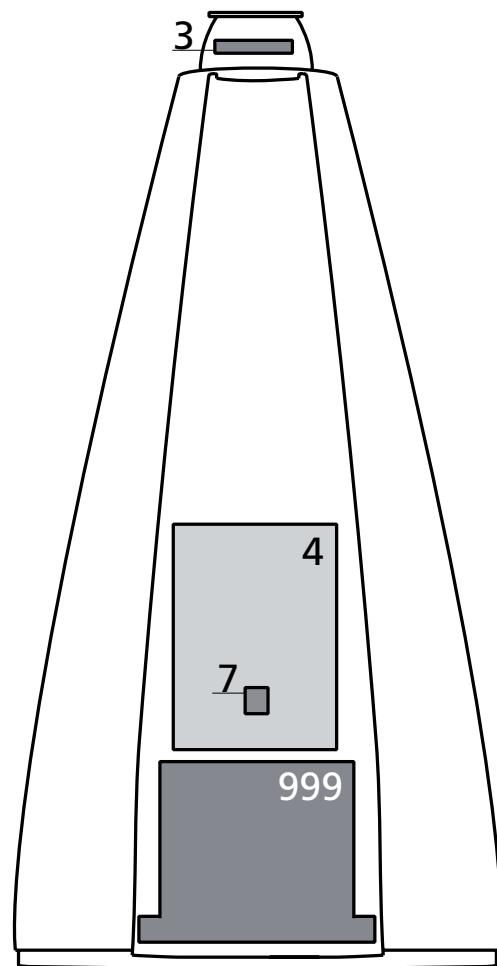


*This Service Manual must be returned
with the defective parts/back-up suitcase !*

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Survey of modules	1.1
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Survey of modules



PCB1	Cross Over
PCB2	LC-Filter
PCB3	LED
PCB4	Power Supply
PCB5	ICEpower Amplifier
PCB7	NTC
999Module	Chassis complete, incl. PCB1, PCB2, PCB5

How to service

Strategy

BeoLab 9 has been split-up into as few service items as possible. Each service-friendly item is packed individually, prepared for worldwide transport, and has a separate seven digit spare part number to be found in the Bang & Olufsen Retail System or the Service Manual. An exploded view drawing shows the service spare parts.

The back-up suitcase holds all necessary electrical modules for front-line repair of one loudspeaker in e.g. the customers home.

Cabinet parts must be brought with you separately, if to be replaced in the customers home.

An adequate fault description must be returned with each replaced part. For this purpose, use the Module Repair form or the form in the Retail Order System under Exchange Module. To help the Bang & Olufsen Module Repair department it is very important to answer the following questions:

1. Which products are in the setup?
2. Which software versions are used in these products?
3. How are the products linked together?
4. What happens in the actual situation?

All service repair will be on module level by means of the back-up suitcase. Service Manuals in other languages can be found in the Retail System as PDF-files.

Preparations before service

Always remember to download the latest version of the Service Manual.
Fault description must be returned with the replaced parts.
Use the Module Repair form or the form in the Retail Order System, Exchange Module.

Fault explanation and demonstration

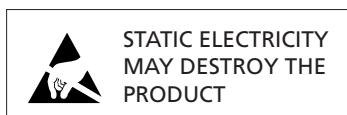
Before troubleshooting is initiated, let the customer demonstrate the fault, if possible.

Recommended tools for service

White gloves.
Soft lint-free cloth.
Multimeter.

Handling and cleaning

Static electricity

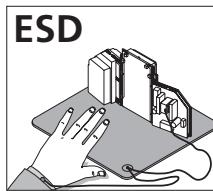


Static electricity may damage the product.

Static-protective field service kit.

A static-protective field service kit must always be used when the product is disassembled or modules are being handled.

Follow the instructions in this Service Manual and use the ESD-mat for both old and new modules.



Please note:

When mains voltage on the product is required, remove the connection between the product and the ESD-mat.

The chassis or modules must always be connected to the static-protective field service kit or placed in an ESD-proof bag.

Symbol of safety components



When replacing components with this symbol, the same type has to be used, also the same values for ohm and watt.

The new component is to be mounted in the same way as the replaced one.

Transport and handling

It is recommended to:

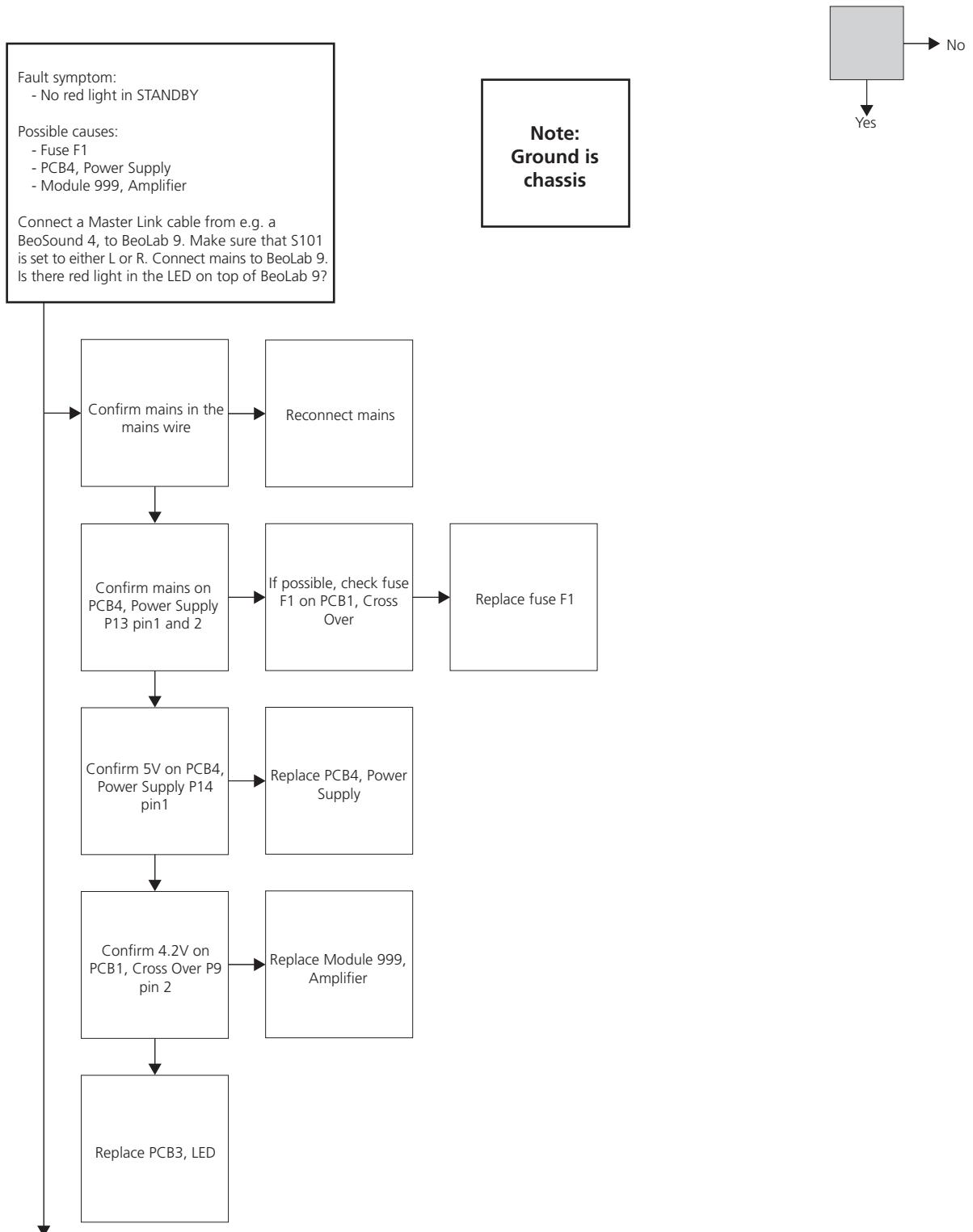
- use the product cover when transporting the product.
- do not move the product when it is operating.

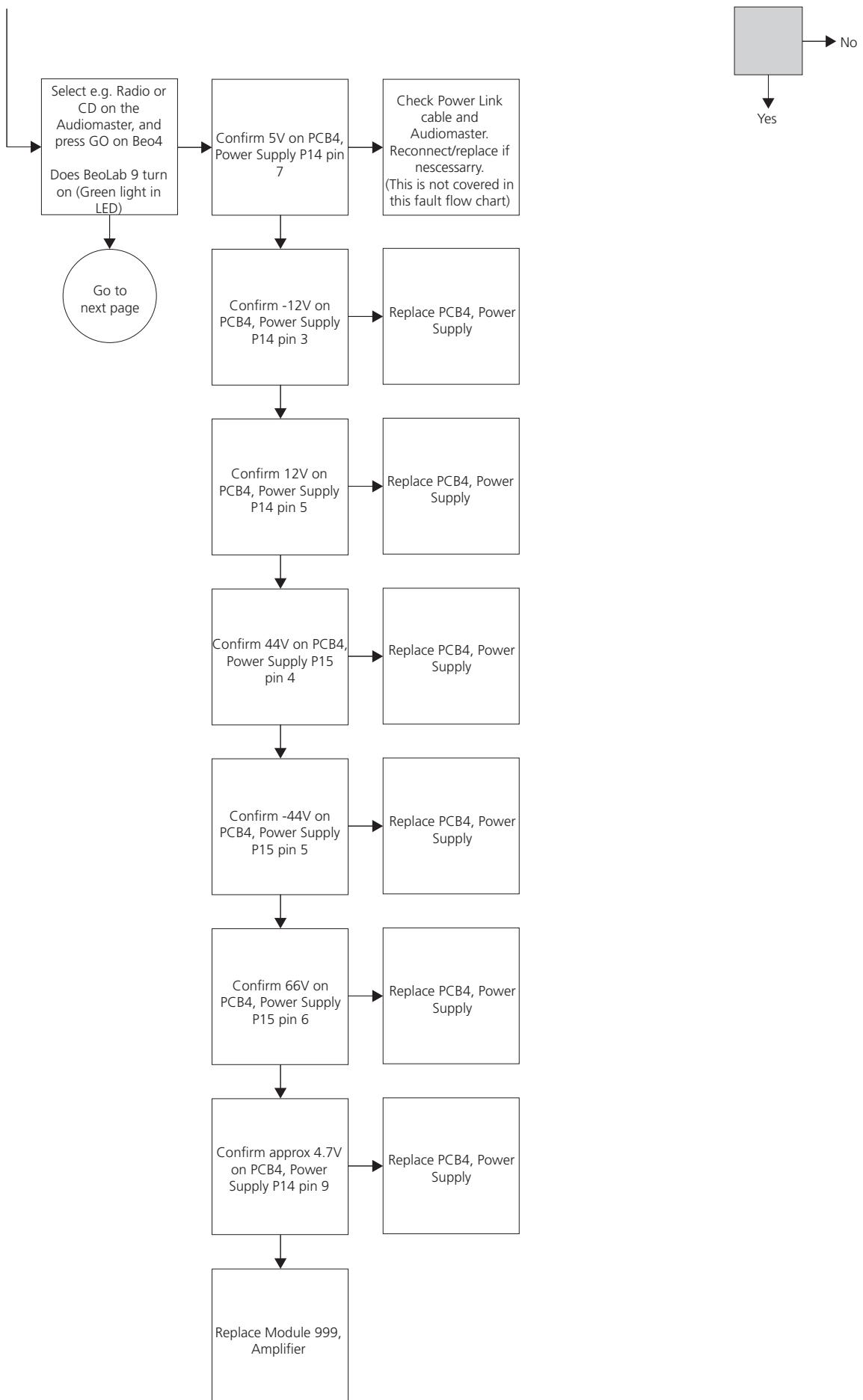
Cleaning

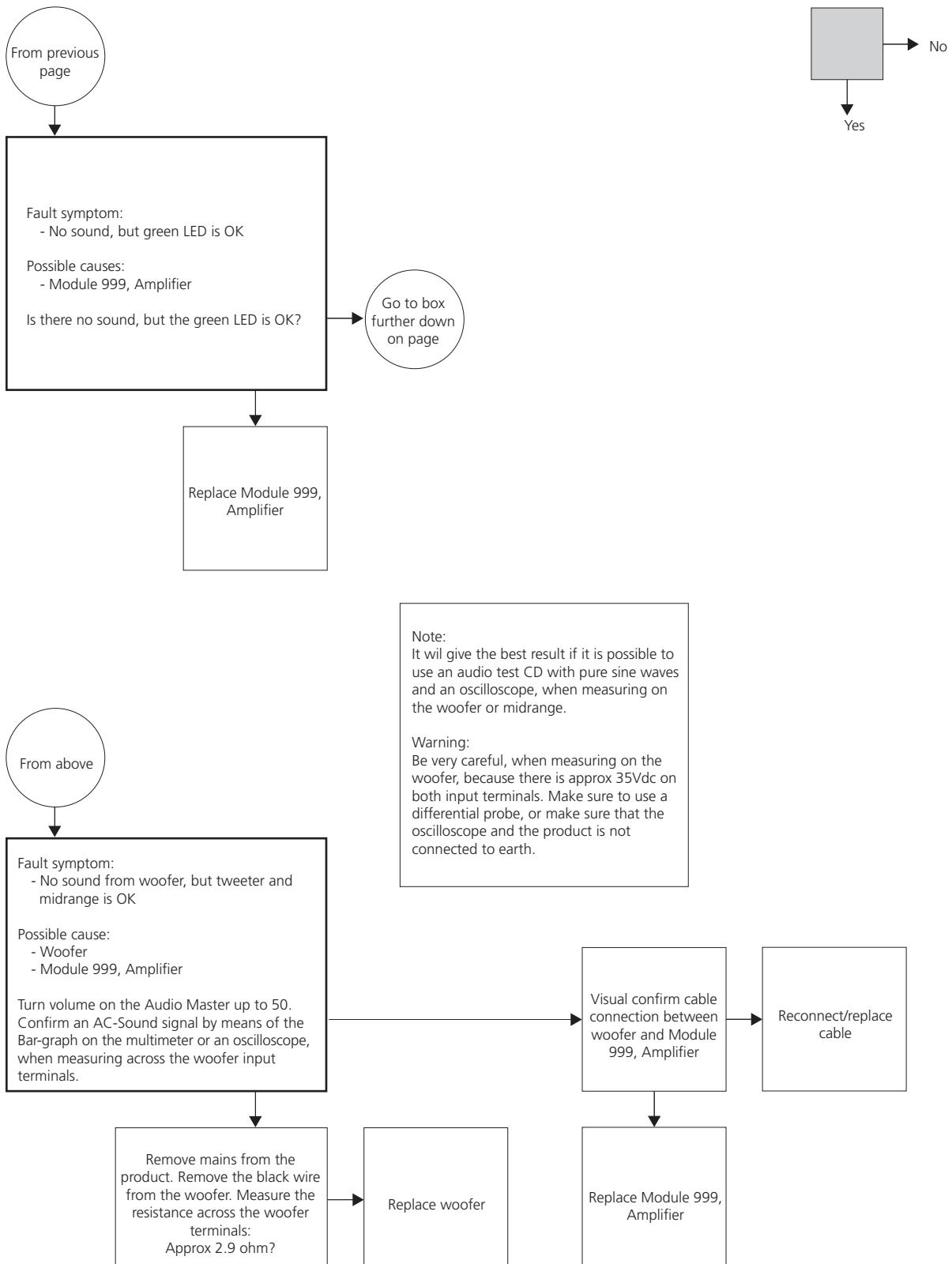
Please refer to the chapter "Final check after repair" or the User's guides.

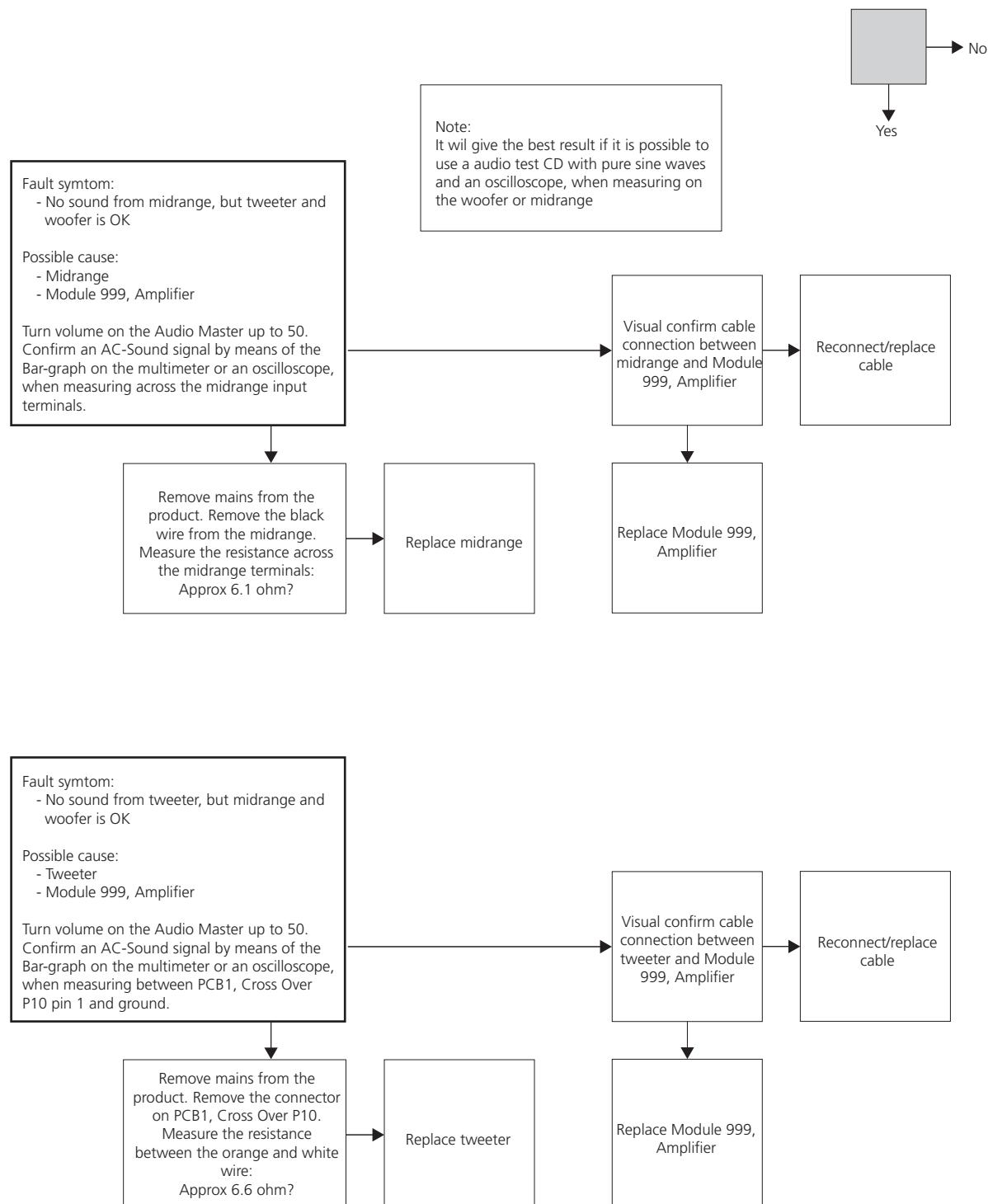
Fault flow chart

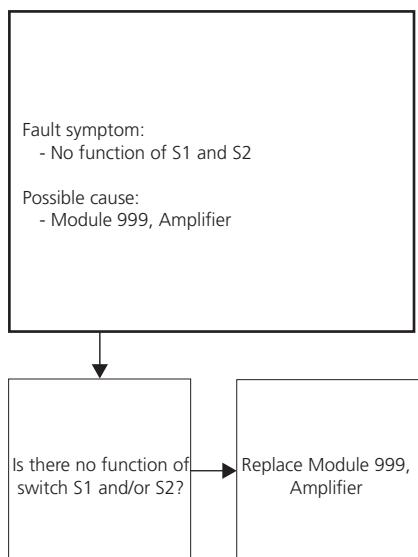
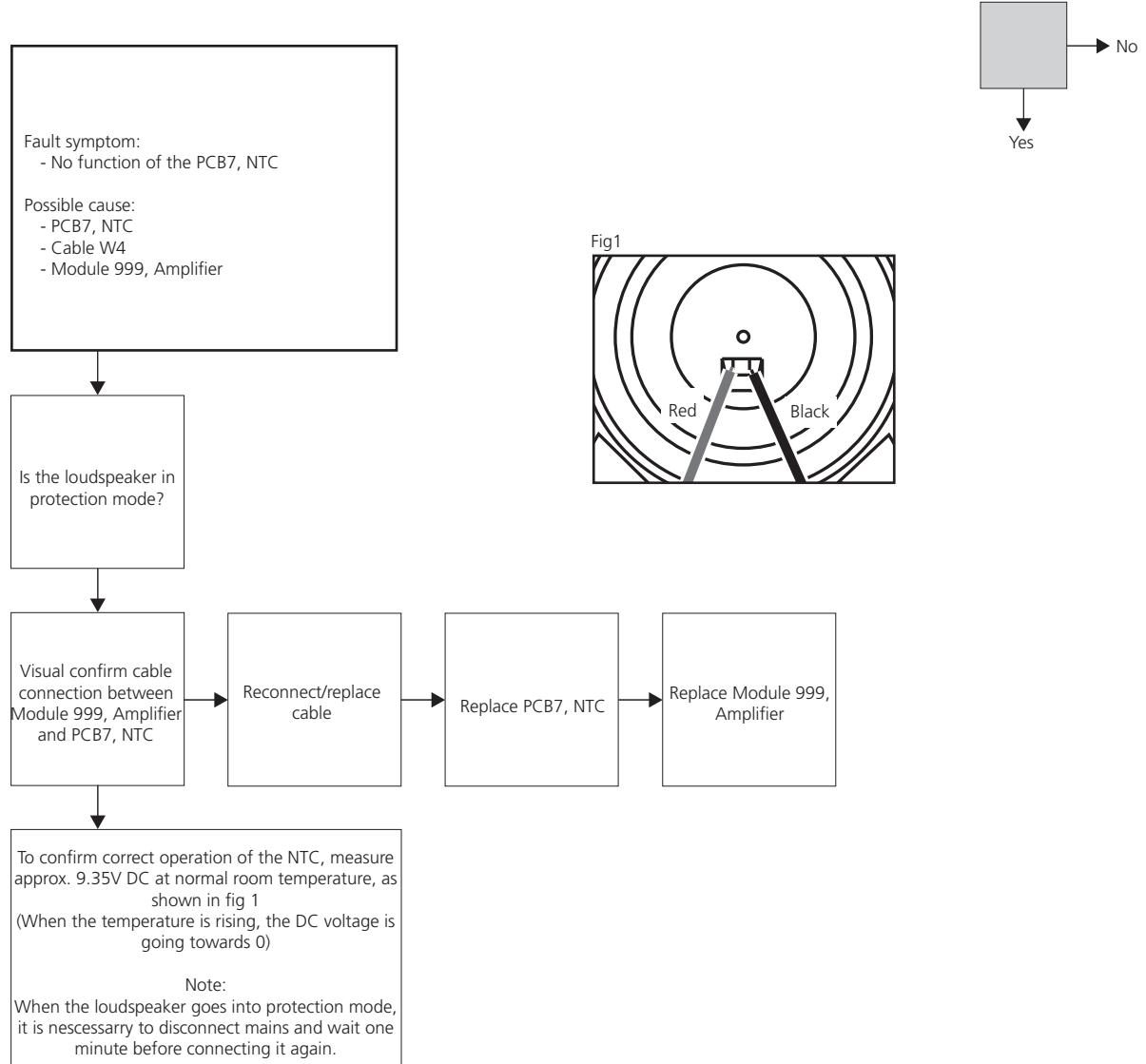
No red light in STANDBY	2.2
No sound, but green LED is OK	2.4
No sound from woofer, but tweeter and midrange is OK	2.4
No sound from midrange, but tweeter and woofer is OK	2.5
No sound from tweeter, but midrange and woofer is OK	2.5
No function of the PCB7, NTC	2.6
No function of S1 and S2	2.6











Adjustments

Adjustments described

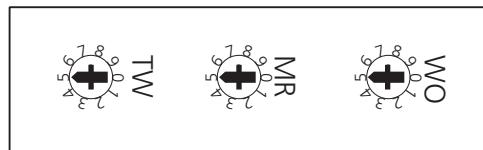
Speaker driver adjustment.

The speakers are individually measured and the speaker driver must be adjusted accordingly.

Adjustment must be performed when either speaker or speaker driver is replaced.

Access to adjustment points

The adjustment points are placed on the socket panel on the back of the product.



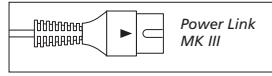
TW: Tweeter
MR: Midrange
WO: Woofer

Speaker adjustment table

Speaker value from label on speaker	Switch position
1.8 – 2.3	0
1.3 – 1.7	1
0.8 – 1.2	2
0.3 – 0.7	3
-0.2 – 0.2	4
-0.3 – -0.7	5
-0.8 – -1.2	6
-1.3 – -1.7	7
-1.8 – -2.2	8
-2.3 – -2.5	9

Repair tips

Hum in speaker when no music is played



The Power Link cable must be of type MK III or higher.

The ground connection in Power Link cable lower than MK III may be insufficient for optimum sound performance.

Standby LED

The standby LED indicates the status of the BeoLab 9.

Standby LED STATUS

Red BeoLab 9 is in standby.

Green BeoLab 9 is operating.

Orange BeoLab 9 is shut down due to thermal overload.

If the LED Status is orange, turn off and disconnect the product from the mains.

Wait for minimum 5 minutes for the speaker to cool down.

Connect mains and turn on BeoLab 9.

If the LED status still is orange the fault may be due to:

1. Woofer protection – perform speaker check.
2. Tweeter protection – perform speaker check.
3. Midrange protection – perform speaker check.
4. NTC-board or connection on one of the woofers.
Access the NTC-board by dismantling the woofer.
4. Power supply failure.

Final check after repair

Final check after repair

The final check after repair describes the activities that are needed to ensure the product will be returned in perfect condition to the customer.

The content is:

- Insulation test.
- Restore setup.
- Final cleaning of the product.

Insulation test

The product must be insulation tested after having been dismantled. Make the test when the set has been reassembled and is ready to be returned to the customer.

Flashover must not occur during the test.

Make the insulation test as follows:

Short-circuit the two pins of the mains plug and connect them to one of the terminals of the insulation tester.

Connect the other terminal to ground on the Power Link socket.

NOTE!

To avoid damaging the product it is essential that both terminals of the insulation tester have good contact.

During the test the current must not exceed 5 mA.

Slowly increase the voltage on the insulation tester until a voltage of 2.5 kV (ac) is obtained. Maintain the voltage level for one second, then slowly decrease the voltage to 0 V (ac).

Restore setup

Ensure that,

- The F/W/C switch is in correct position.
- The plug is inserted over the standby LED.
- The Power Link cable is a MK III or higher.

Check sound

Ensure that all speakers are OK.

Clean the product

Clean dusty surfaces using a dry soft cloth. If necessary, remove grease stains or persistent dirt with a lint-free, firmly wrung cloth, dipped in a solution of water containing only a few drops of mild detergent such as washing-up liquid.

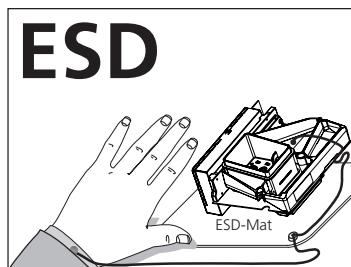
The loudspeaker front grill may be cleaned with a vacuum cleaner with a soft brush nozzle, and set to the lowest level.

Replacement of modules

Modules that can be replaced

BeoLab 9 in service position	4.2
Replace PCB3, LED	4.4
Replace PCB4, Power Supply	4.6
Replace 999Module, Amplifier	4.7
Replace tweeter	4.9
Replace midrange	4.11
Replace woofer	4.12
Replace rubber foot	4.13

Warning – Static electricity



Static electricity may damage the product.

A static-protective field service kit must always be used when the product is disassembled or modules are being handled.

Notice!

All modules must be placed on the ESD-mat or in an ESD-proof bag.

Purpose of replacement of modules

Short instructions for replacement of the available modules, with reference to additional illustrations:

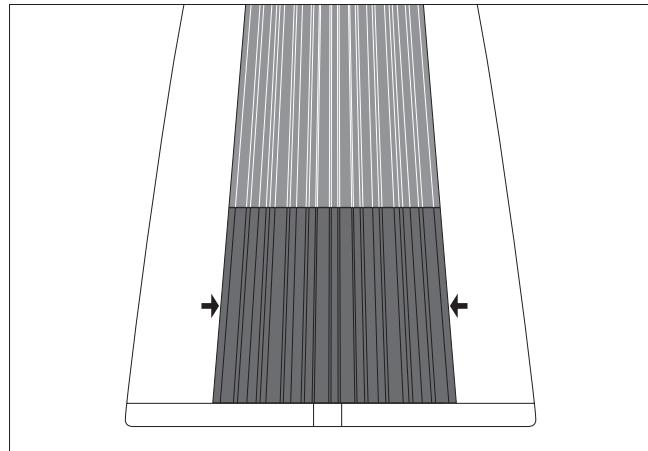
- The correct sequence for replacing modules.
- Text and illustrations.
- Reference to adjustment.

Modules that do not require any special procedure may be shown as only illustrations.

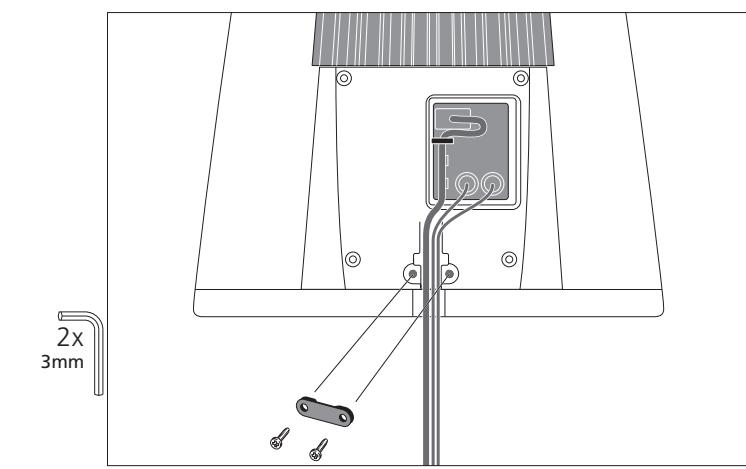
After replacement of drivers

After replacing a driver, see Adjustments and Repair tips.

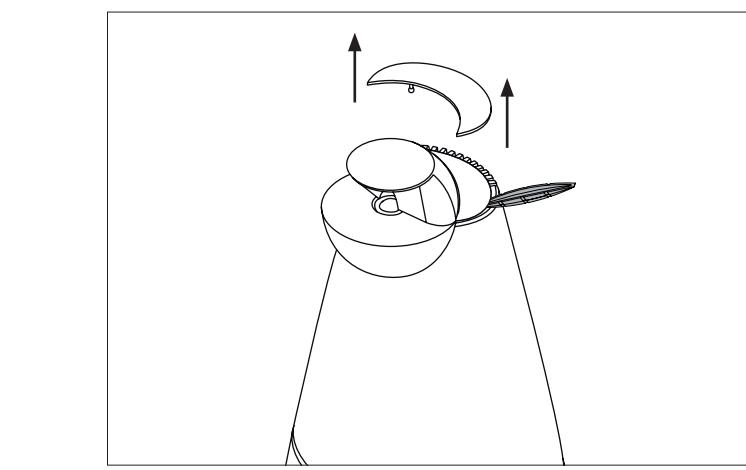
- Remove cover



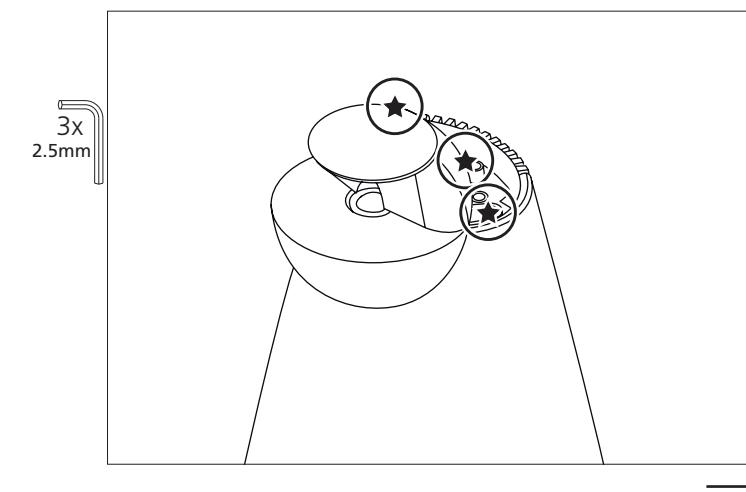
- Remove cables connected to BeoLab 9



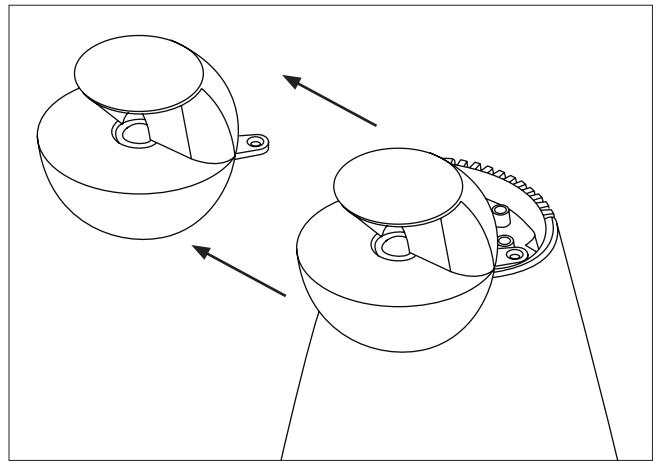
- Remove cover, top



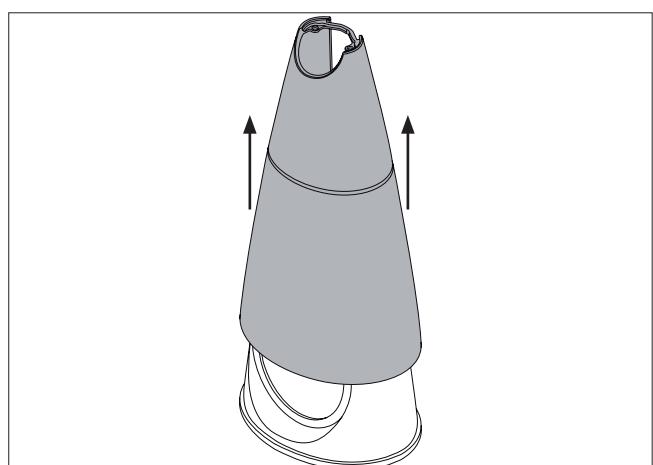
- Remove screws for lens



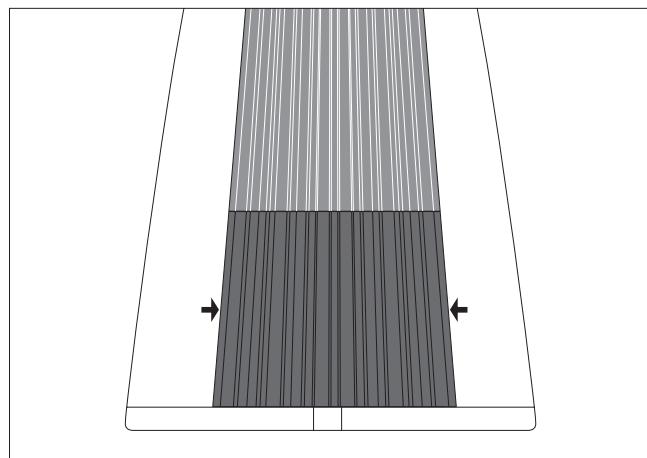
→ - Gently lift off lens



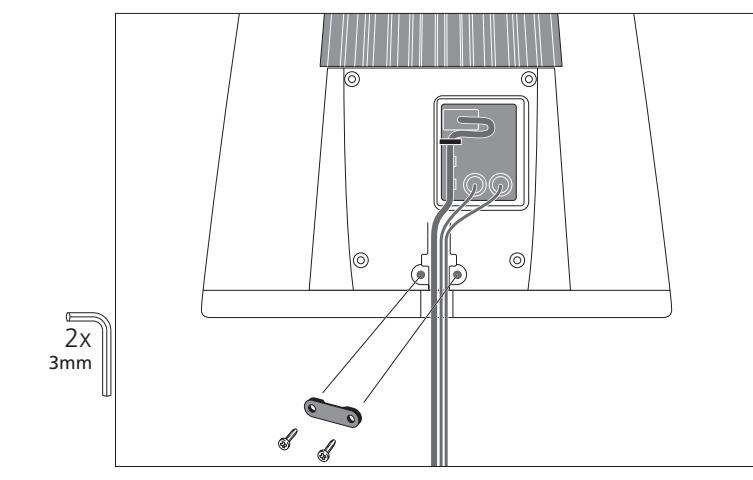
- Pull off fabric frame



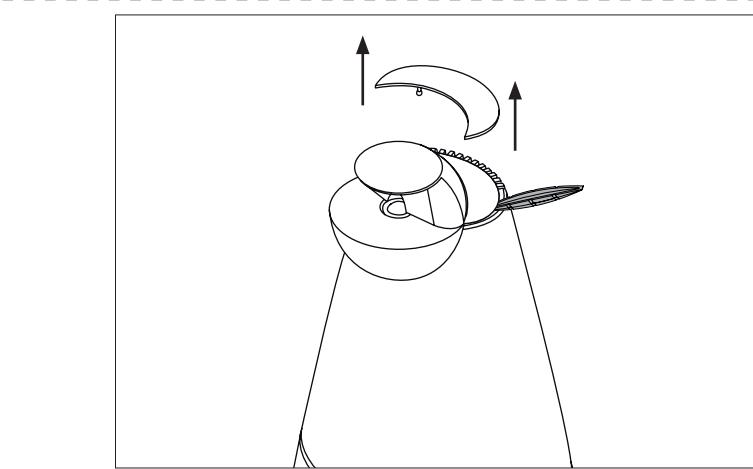
- Remove cover



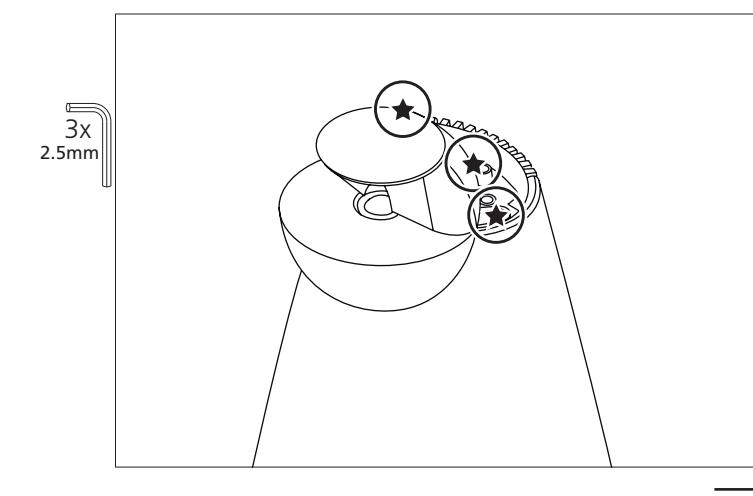
- Remove cables connected to BeoLab 9



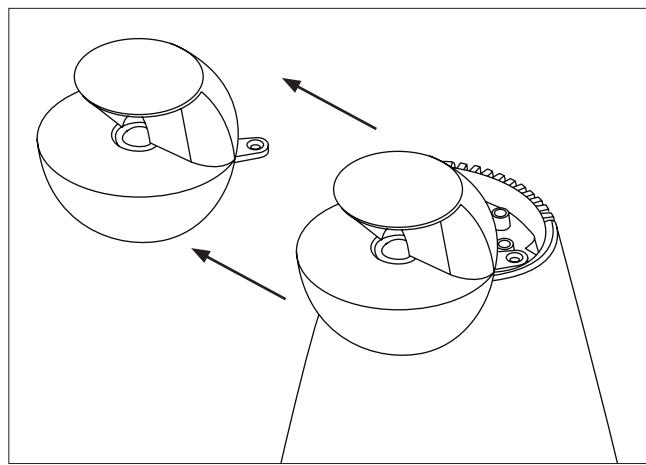
- Remove cover, top



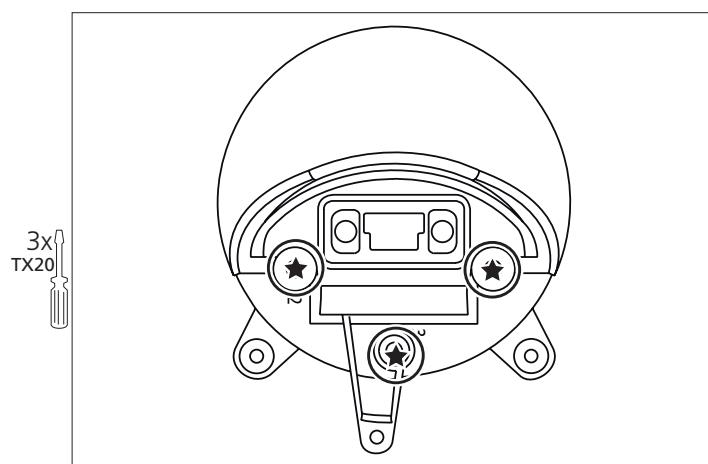
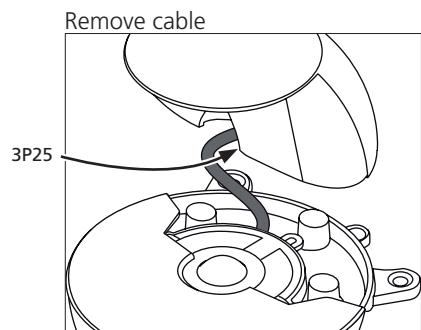
- Remove screws for lens



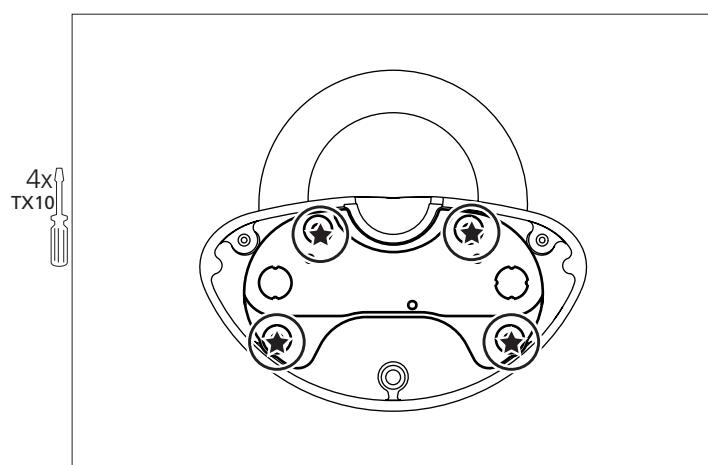
→ - Gently lift off lens



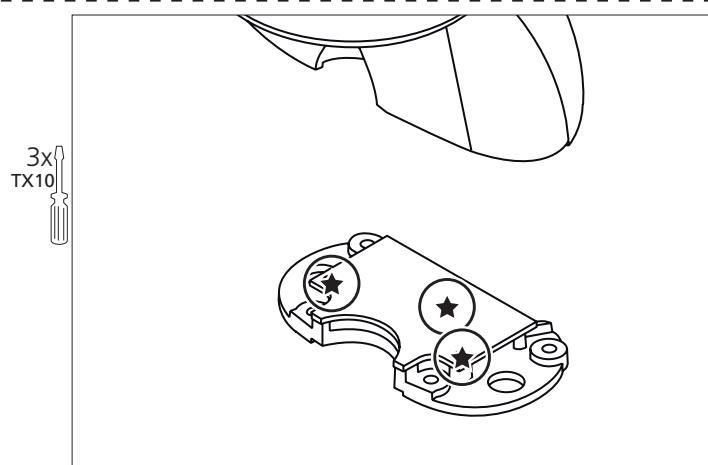
- Remove screws and pull off lens top



- Remove screws and pull off PCB3, LED with chassis

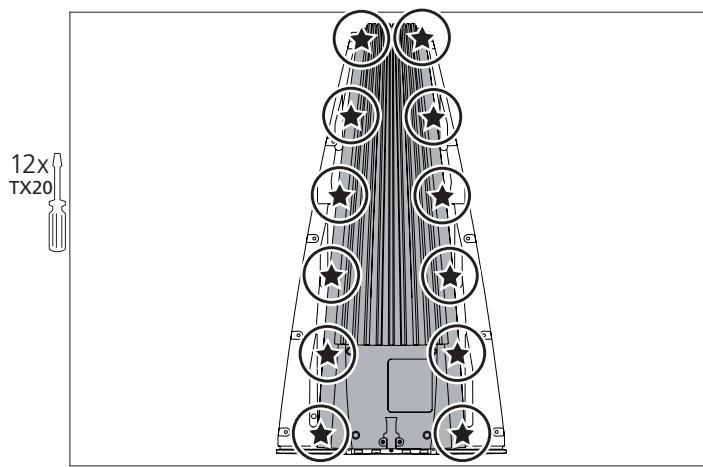


- Remove screws for PCB3, LED

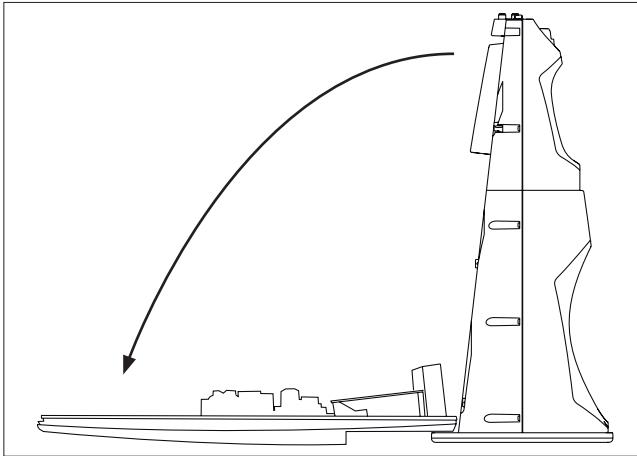


 4.2 BeoLab 9 in service position

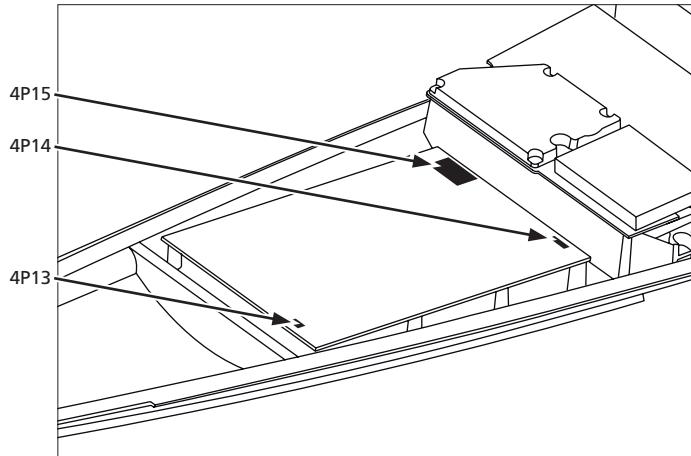
- Remove screws



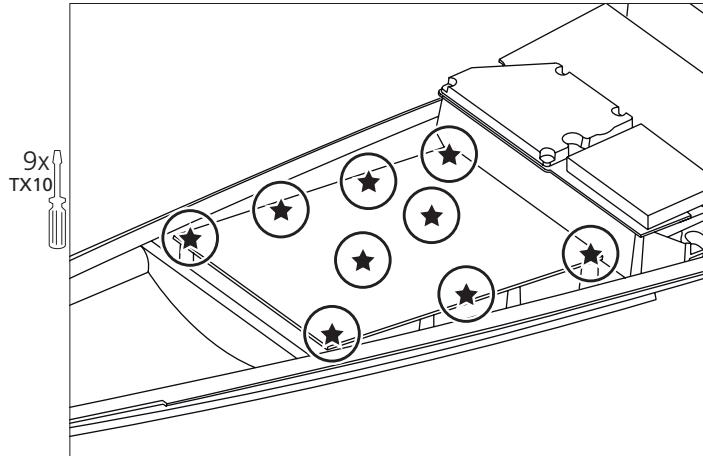
- Flip down heat sink as shown



- Remove cables

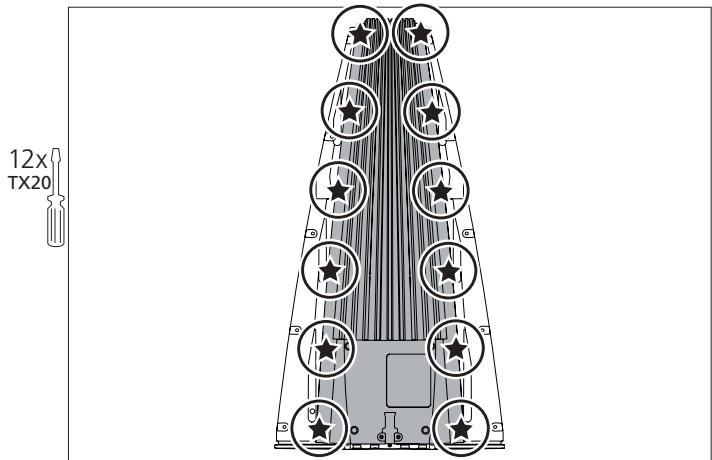


- Remove screws

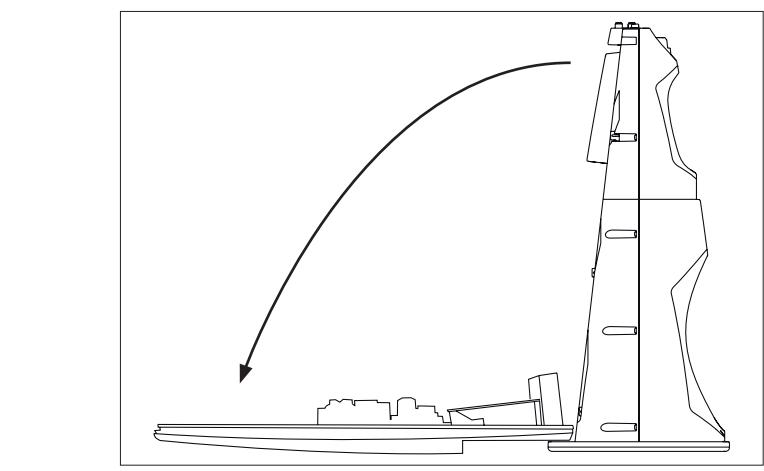


 4.2 BeoLab 9 in service position

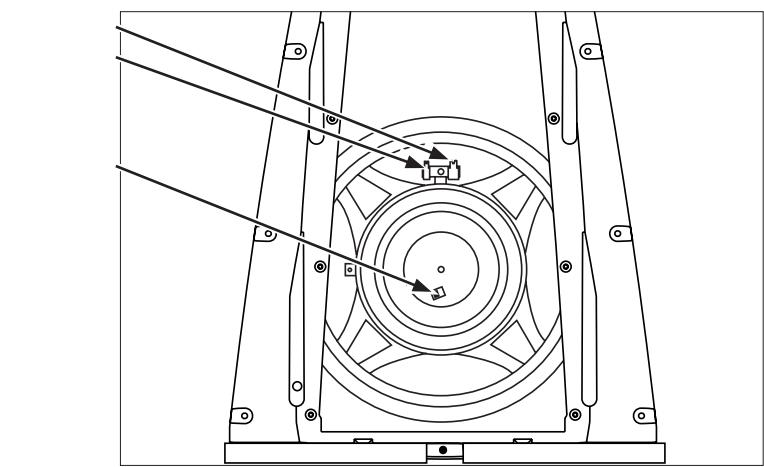
- Remove screws



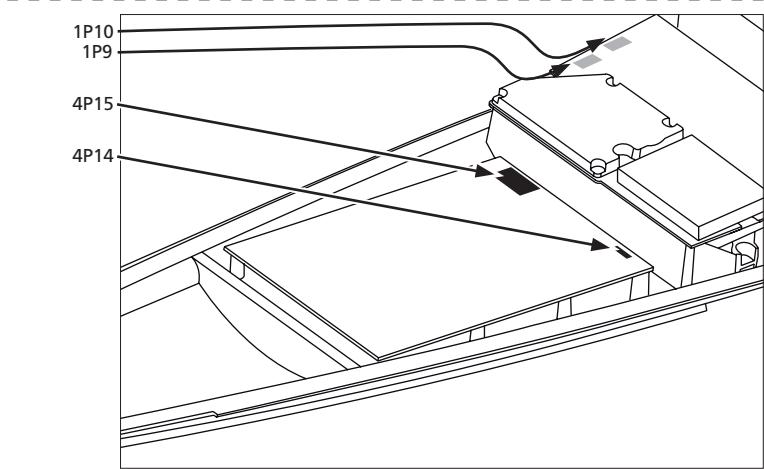
- Flip down heat sink as shown



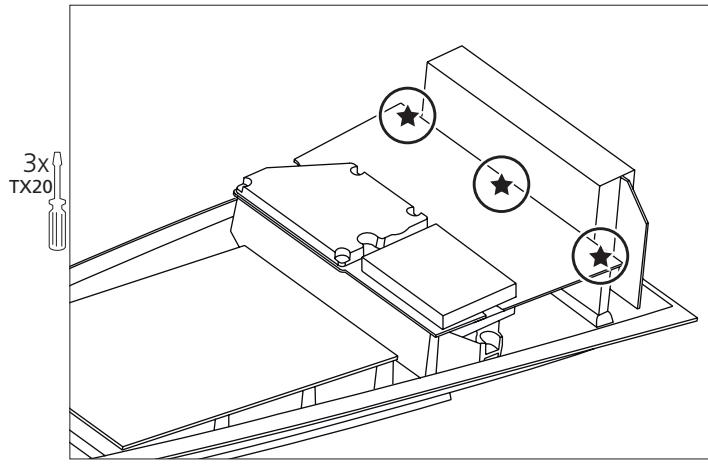
- Remove cables from woofer



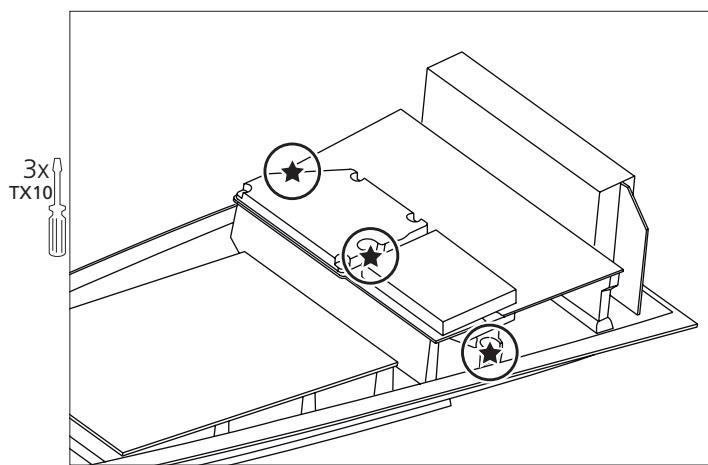
- Remove cables as shown



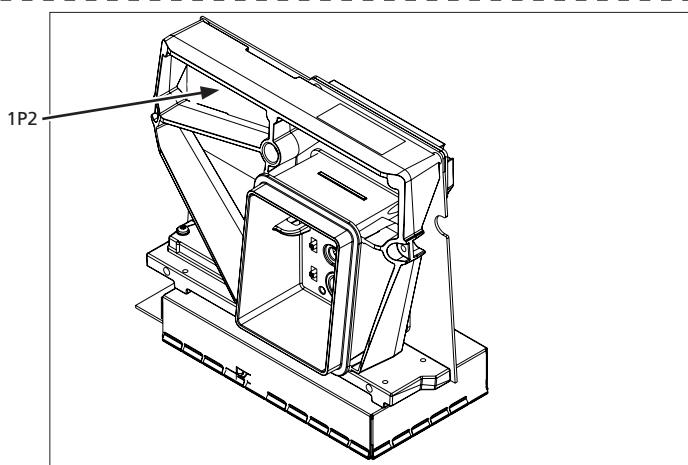
→ - Remove screws as shown



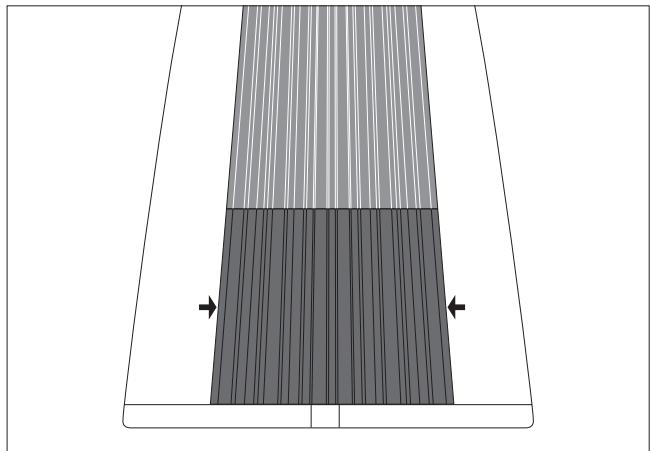
- Remove screws as shown



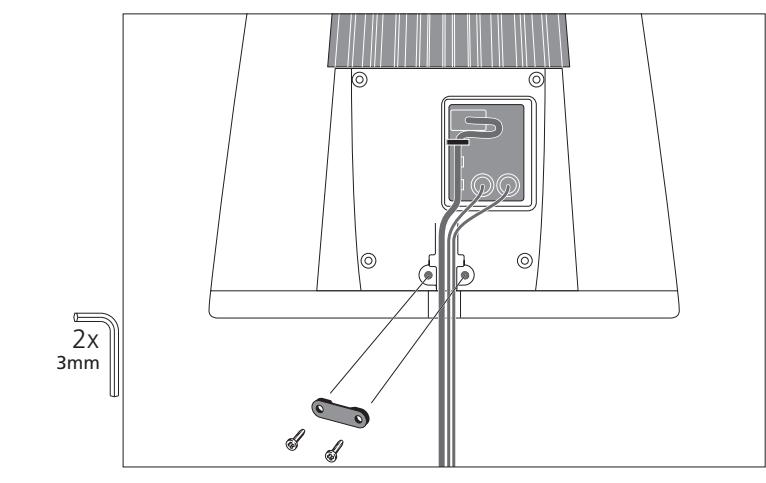
- Remove cable on backside of 999Module, Amplifier



- Remove cover

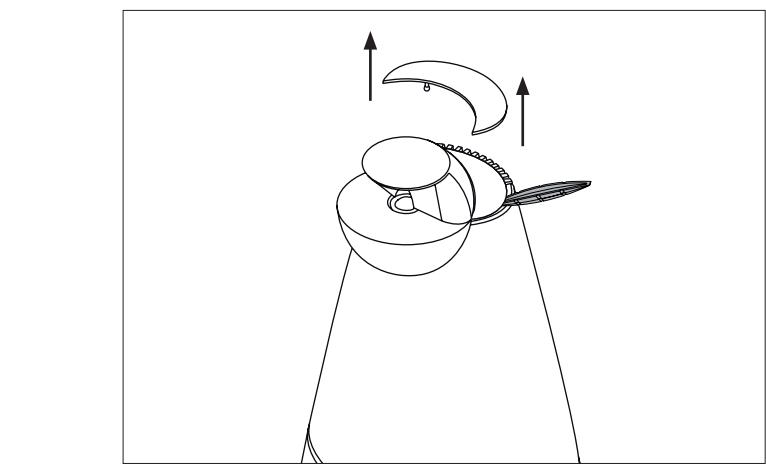


- Remove cables connected to BeoLab 9

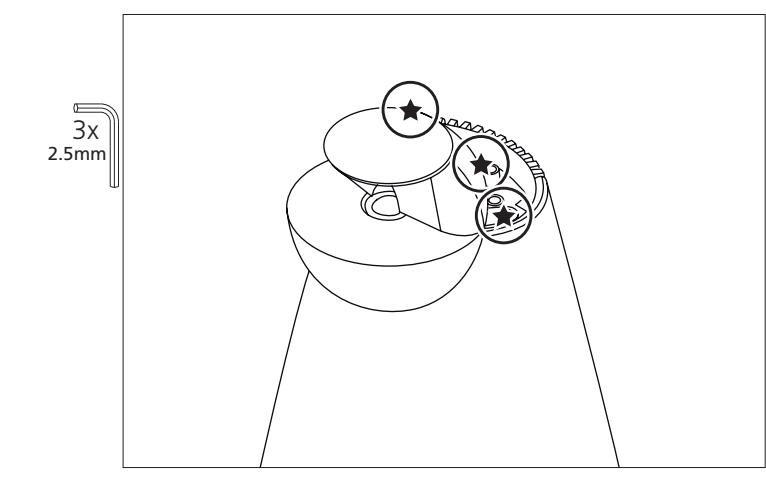


- Remove cover, top

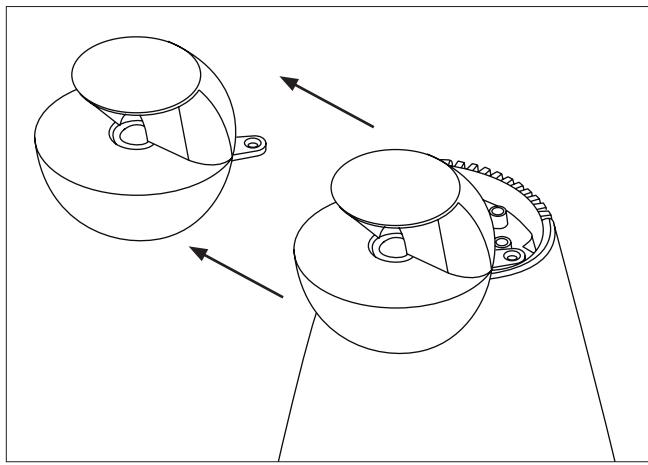
- Use Special tool



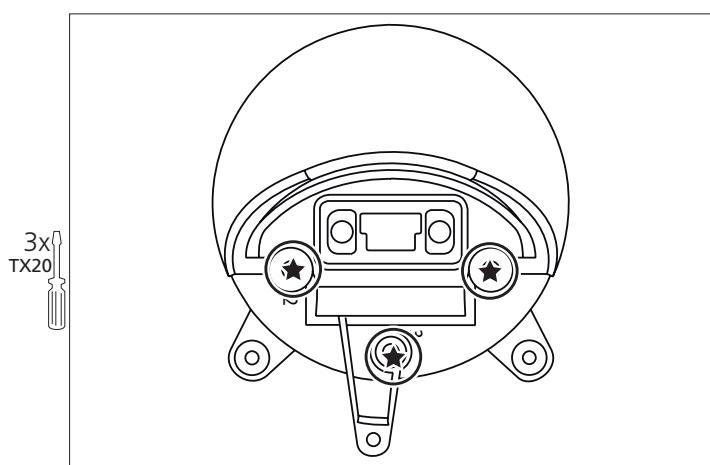
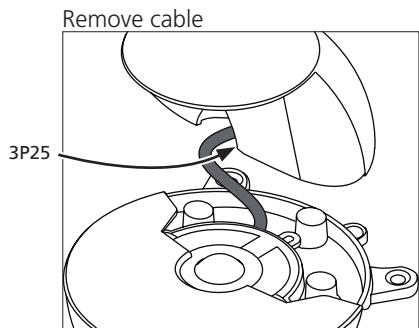
- Remove screws for lens



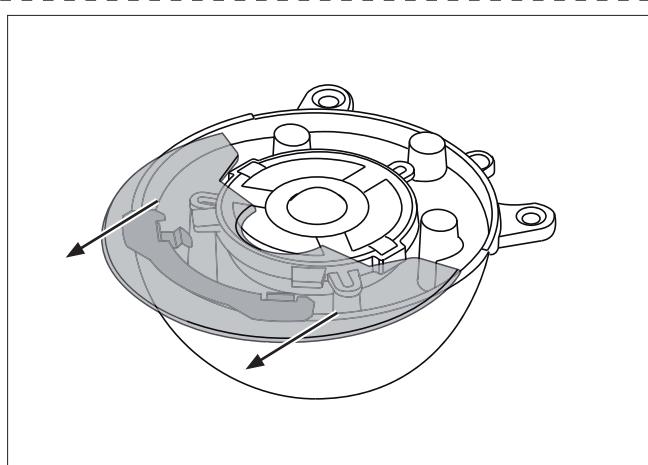
→ - Gently lift off lens



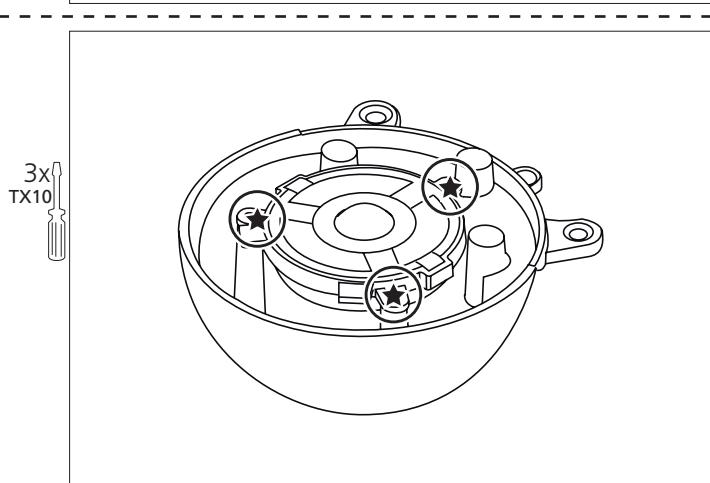
- Remove screws and pull off lens top



- Remove tweeter cover

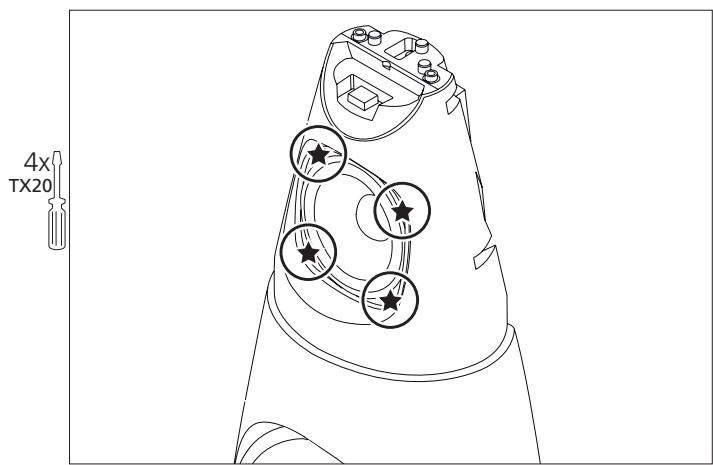


- Remove screws for tweeter

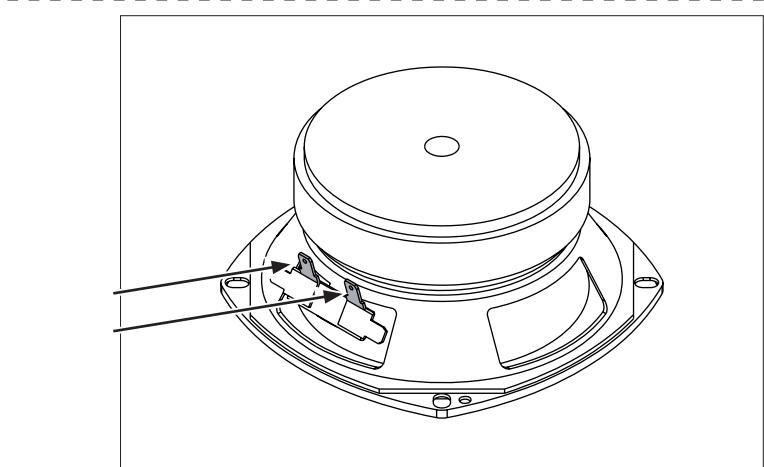


 4.2 BeoLab 9 in service position

- Remove screws

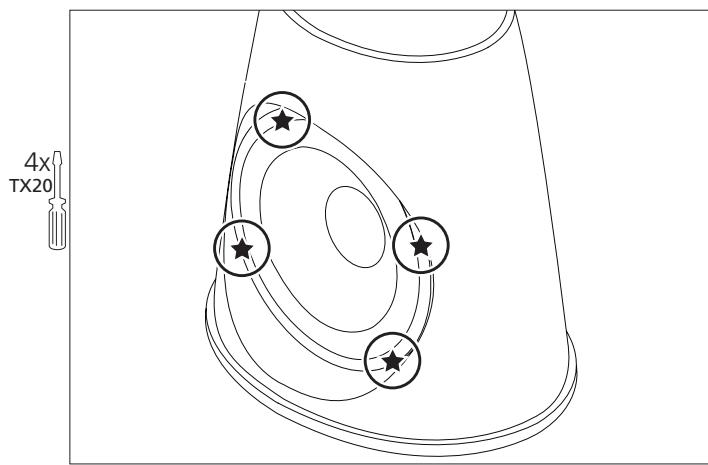


- Remove cables

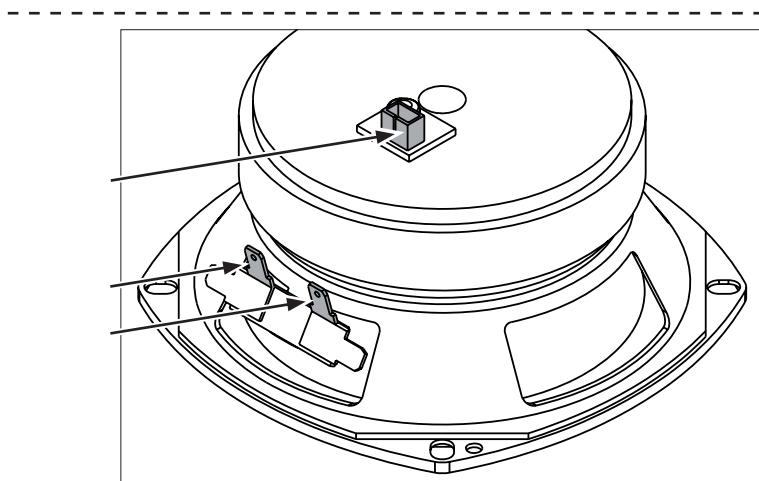


 4.2 BeoLab 9 in service position

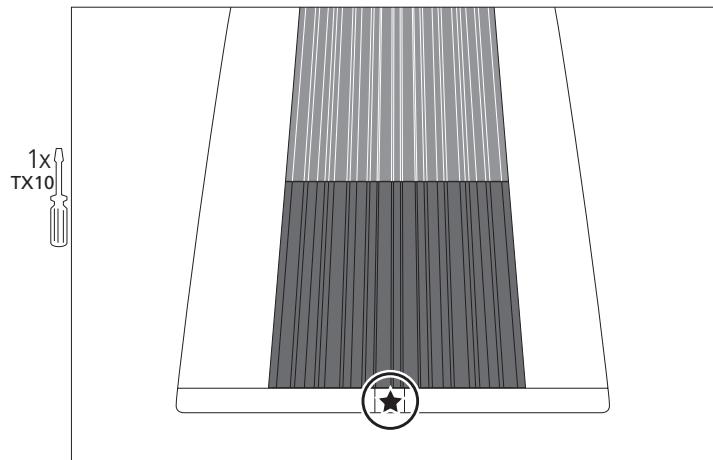
- Remove screws



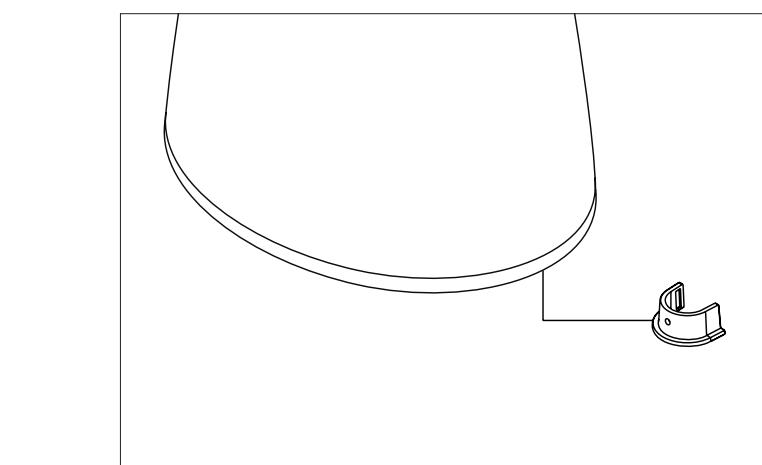
- Remove cables (remember NTC)



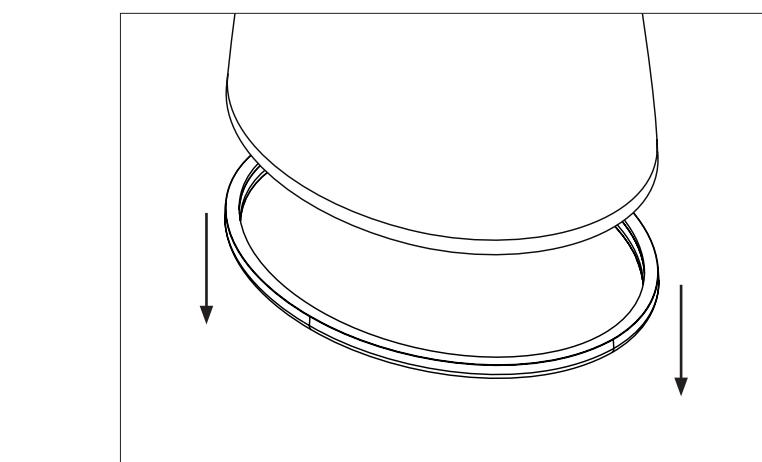
- Remove screw



- Pull off bracket

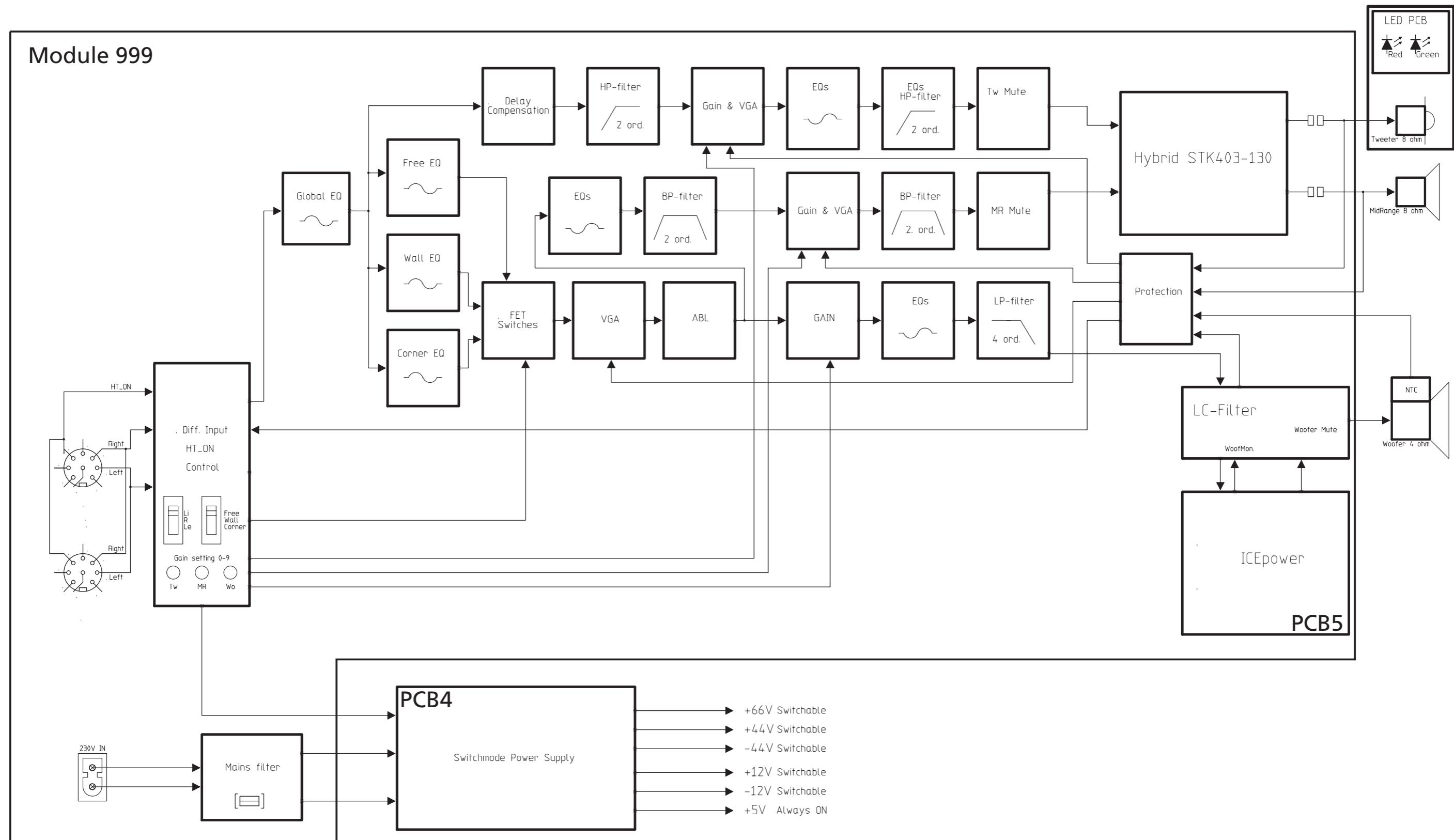


- Pull off rubber foot

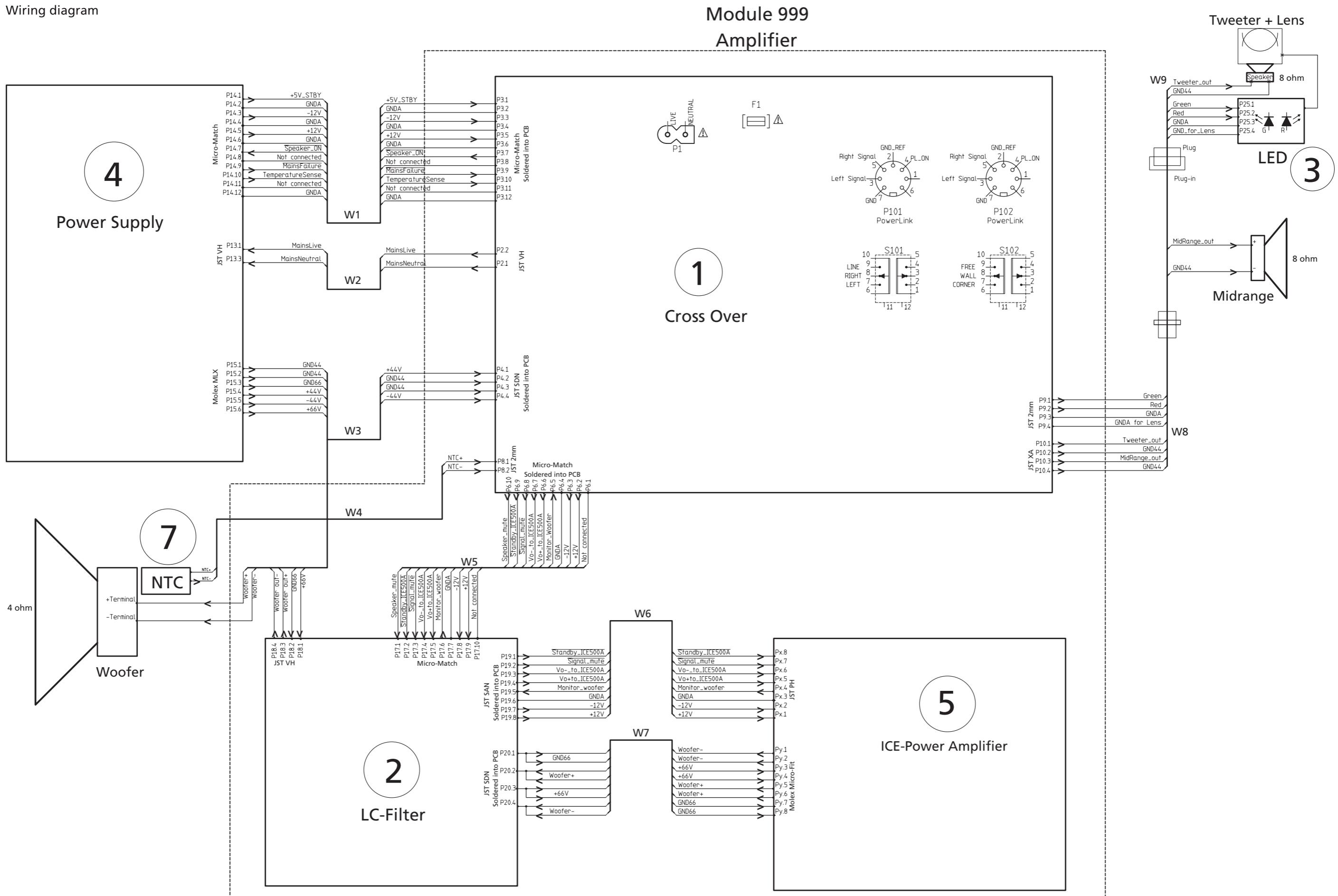


Specification guidelines for service use	BeoLab 9
Type number	6217
Dimensions W x H x D	775mm x 400mm x 300mm
Dimensions W x H x D, incl. packaging two pcs. in one carton box	1004mm x 800mm x 600mm
Weight	16.6 kg
Weight, incl. packaging	44.9 kg
Cabinet finish	Black cloth, aluminium Blue cloth, aluminium Dark grey cloth, aluminium Red cloth, aluminium
Mains	90-240Vac
Power consumption	65W (IEC60065) 25W typical < 0,5W in standby
Power amplifier, bass	400W, 4 ohm, class D ICEpower
Power amplifier, midrange	100W, 6 ohm, class AB
Power amplifier, treble	100W, 8 ohm, class AB
Effective Frequency range	30 - 20,000 Hz
Crossover frequency	180/2000 Hz
Cabinet principle	Closed box
Net volume, bass	18 litres
Net volume, midrange	4 litres
Woofer	10" / 250mm cone
Midrange	5" / 125mm cone
Tweeter	3/4" / 19mm dome in acoustic lens
Bass equalization	ABL (Adaptive Bass Linearization)
Input sensitivity (Power Link) and (line)	125mV @ 91dB SPL
Switch off time (line)	Automatic on /off (up to 3min)
Indication	On/Off LED placed in the acoustic lens
Operation	Switch for Free standing - Against wall - In corner Switch for Left - Right - Line (via PL plug)
Protection	Thermal protection of all drivers ABL system protects the bass unit against mechanical damage
Connections	
Power Link	Two (use semi-balanced PL cable type MKIII, or fully mounted PL cable)
POWER LINK	Pin 1 PL ON => 2.5V, OFF = < 0.5V Pin 2 Signal GND Pin 3 Audio L out 0V - 6.5V RMS Pin 4 PL speaker ON => 2.5V, OFF = < 0.5V Pin 5 Audio R out 0V - 6.5V RMS Pin 6 Data: High > 3.5V, Low < 0.8V Pin 7 Data GND Pin 8 Not used
Line-in	Via PL using Line-to-PL adaptor cable
Mains	One (two pin male shaver plug type)
Subject to change without notice	

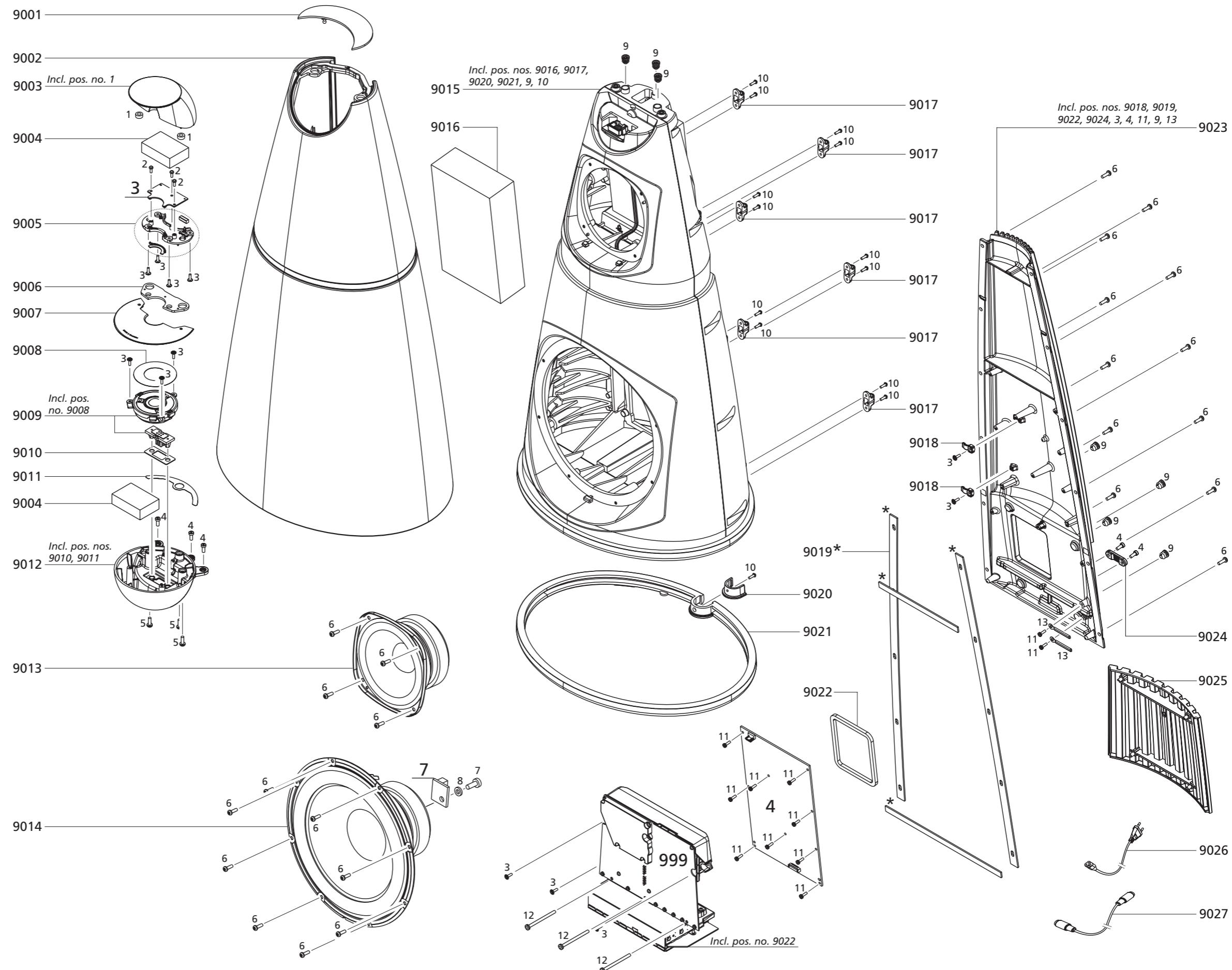
Block diagram



Wiring diagram



Available parts
BeoLab 9



BeoLab 9

9001	3458152	Cover, top
9002	3321047	Fabric frame, black
	3321048	Fabric frame, dark grey
	3321049	Fabric frame, blue
	3321050	Fabric frame, red
9003	3131109	Lens, top incl. pos. no. 1
9004	3332007	Damping material
9005	3152321	Chassis w/light guide
9006	3912009	Acoustic felt
9007	3459508	Cover, tweeter
9008	3947303	Gasket
9009	8480084	Tweeter
9010	3947306	Gasket
9011	3947318	Gasket
9012	3131108	Lens, bottom incl pos. nos. 9010, 9011
9013	8480080	Midrange
9014	8480082	Woofer 10"
9015	3400061	Cabinet incl. pos. nos. 9016, 9017, 9020, 9021, 9, 10
	3947350	Tape/foam 3 x 7mm – 10m
9016	3332010	Damping material
9017	3151911	Guide
9018	3152235	Clips f/wire
9019	3947305	Gasket, set
9020	3152154	Bracket f/foot
9021	2954004	Rubber foot
9022	3947304	Gasket
9023	3358277	Heat sink incl. pos. nos. 9018, 9019, 9022, 9024, 3, 4, 11, 9, 13
9024	3151552	Wire holder
9025	3160408	Cover
9026	6100273	Mains wire, EU
	6100329	Mains wire, UK
	6100307	Mains wire, US
	6100332	Mains wire, AUS
	6100386	Mains wire, KOR
	6100331	Mains wire, JPN
	6100047	Mains wire, CHN
9027	6270688	Powerlink cable, black, 5m

3Module 8003276 PCB3, LED

4Module 8003325 PCB4, Power Supply

7Module 8100090 PCB7, NTC

999Module 8052273 999Module, Amplifier consists of: PCB1 - PCB2 - PCB5, incl. pos. no. 9022
F1 6600177 Fuse T 5A 250V**Survey of screws etc.**

1	2930112	Gasket
2	2052040	Screw 3 x8 mm
3	2054060	Screw 3 x 10mm
4	2058092	Screw 4 x 10mm
5	2019025	Screw 4 x 12mm
6	2019021	Screw 4 x 12mm
7	2058026	Screw 3 x 8mm
8	2625002	Lock washer
9	2930178	Bushing
10	2052011	Screw 3 x 10mm
11	2054043	Screw 3 x 10mm
12	2015005	Screw 4 x 55mm
13	7530118	Solder pin

Wire bundles W2 6277985 Wire from PCB1, P2 – PCB4, P13

Parts not shown
3395313 Back-up suitcase
3376000 Product cover
3040017 Special tool

Accessories 6270856 Cable, RCA-phono to PL Line-in, black, 5m
6270433 Adapter, mini-jack/male – RCA female x 2

Packing 3393016 Outer carton, top-bottom
3396425 Packing, complete
3392768 Pallet

Available documentation See Retail Ordering System

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